Claims

[c1]   What is claimed is:

1.A method of routing data between IP-based telephone
extensions in a telecommunications network,
the telecommunications network comprising:
a first Internet Protocol (IP) sharing device for sharing
connection to a first IP address;
a first remote telephone group containing a first set of
IP-based telephones, the first remote telephone group
being connected to the Internet through the first IP shar-
ing device, and each of the IP-based telephones in the
first remote telephone groups being assigned a unique
identifier;
a second IP sharing device for sharing connection to a
second IP address;
a second remote telephone group containing a second
set of IP-based telephones, the second remote telephone
group being connected to the Internet through the sec-
ond IP sharing device, and each of the IP-based tele-
phones in the second remote telephone groups being
assigned a unique identifier;
a main host connected to the Internet for controlling
data traffic over the Internet between the first remote

telephone group and the second remote telephone group; and

a remote host connected to the Internet through the first IP sharing device for linking the first remote telephone group to the second remote telephone group and main host;

the method comprising:

the remote host connecting with and logging into the main host;

generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the second remote telephone group;

transmitting the data packets to the remote host;

the remote host transmitting the data packets to the main host; and

the main host transmitting the data packets to the destination IP-based telephone in the second remote telephone group for establishing communication between the source IP-based telephone in the first remote telephone group and the destination IP-based telephone in the second remote telephone group.

[c2]   2.The method of claim 1 further comprising:

generating data packets with a source IP-based telephone in the second remote telephone group for con-

tacting a destination IP-based telephone in the first remote telephone group;

transmitting the data packets to the main host;

the main host transmitting the data packets to the remote host; and

the remote host transmitting the data packets to the destination IP-based telephone in the first remote telephone group for establishing communication between the source IP-based telephone in the second remote telephone group and the destination IP-based telephone in the first remote telephone group.

[c3]   3.The method of claim 1 further comprising:

generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;

the remote host contacting the main host to request connection of the source IP-based telephone and the destination IP-based telephone;

the main host contacting the remote host to grant connection of the source IP-based telephone and the destination IP-based telephone;

the remote host establishing a direct connection between the source IP-based telephone and the destination IP-based telephone; and

the source IP-based telephone communicating with the destination IP-based telephone.

[c4]   4.The method of claim 3 wherein the source IP-based telephone communicates with the destination IP-based telephone locally without connecting to the Internet.

[c5]   5.The method of claim 1 further comprising: terminating connection between the remote host and the main host; generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the first remote telephone group; the remote host establishing a direct connection between the source IP-based telephone and the destination IP-based telephone; and the source IP-based telephone communicating with the destination IP-based telephone.

[c6]   6.The method of claim 5 wherein the source IP-based telephone communicates with the destination IP-based telephone locally without connecting to the Internet.

[c7]   7.The method of claim 1 wherein the remote host performs bandwidth control functions for the first remote telephone group.

[c8]   8.The method of claim 1 wherein the remote host sends duplicate copies of system information received from the main host to each of the IP-based telephones in the first remote telephone group.

[c9]   9.The method of claim 1 wherein the first and second IP addresses are dynamic IP addresses.

[c10]   10.A method of routing data between IP-based telephone extensions in a telecommunications network, the telecommunications network comprising:
a first Internet Protocol (IP) sharing device for sharing connection to a first IP address;
a first remote telephone group containing a first set of IP-based telephones, the first remote telephone group being connected to the Internet through the first IP sharing device, and each of the IP-based telephones in the first remote telephone groups being assigned a unique identifier;
a second IP sharing device for sharing connection to a second IP address;
a second remote telephone group containing a second set of IP-based telephones, the second remote telephone group being connected to the Internet through the second IP sharing device, and each of the IP-based telephones in the second remote telephone groups being

assigned a unique identifier;

a main host connected to the Internet for controlling data traffic over the Internet between the first remote telephone group and the second remote telephone group;

a first remote host connected to the Internet through the first IP sharing device for linking the first remote telephone group to the second remote telephone group and main host; and

a second remote host connected to the Internet through the second IP sharing device for linking the second remote telephone group to the first remote telephone group and main host;

the method comprising:

the first and second remote hosts connecting with and logging into the main host;

generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the second remote telephone group;

transmitting the data packets to the first remote host;

the first remote host transmitting the data packets to the second remote host; and

the second remote host transmitting the data packets to the destination IP-based telephone in the second remote telephone group for establishing communication be-

tween the source IP-based telephone in the first remote telephone group and the destination IP-based telephone in the second remote telephone group.

[c11] 11. The method of claim 10 further comprising:
generating data packets with a source IP-based telephone in the second remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;
transmitting the data packets to the second remote host;
the second remote host transmitting the data packets to the first remote host; and
the first remote host transmitting the data packets to the destination IP-based telephone in the first remote telephone group for establishing communication between the source IP-based telephone in the second remote telephone group and the destination IP-based telephone in the first remote telephone group.

[c12] 12. The method of claim 10 further comprising:
generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;
the first remote host contacting the main host to request connection of the source IP-based telephone and the destination IP-based telephone;

the main host contacting the first remote host to grant connection of the source IP-based telephone and the destination IP-based telephone;

the first remote host establishing a direct connection between the source IP-based telephone and the destination IP-based telephone; and

the source IP-based telephone communicating with the destination IP-based telephone.

[c13]   13. The method of claim 12 wherein the source IP-based telephone communicates with the destination IP-based telephone locally without connecting to the Internet.

[c14]   14. The method of claim 10 further comprising:

terminating connection between the first remote host and the main host;

generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;

the first remote host establishing a direct connection between the source IP-based telephone and the destination IP-based telephone; and

the source IP-based telephone communicating with the destination IP-based telephone.

[c15]   15. The method of claim 14 wherein the source IP-based

telephone communicates with the destination IP-based telephone locally without connecting to the Internet.

[c16]   16.The method of claim 10 wherein the first and second remote hosts perform bandwidth control functions for the first and second remote telephone groups, respectively.

[c17]   17.The method of claim 10 wherein the first and second remote hosts send duplicate copies of system information received from the main host to each of the IP-based telephones in the first and second remote telephone groups, respectively.

[c18]   18.The method of claim 10 wherein the first and second IP addresses are dynamic IP addresses.